



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/497,513 | 02/04/2000 | Yoshitaka Kawanabe | Q057824 | 7577 |

7590

06/10/2003

Sughrue Mion Zinn MacPeak & Seas
2100 Pennsylvania Avenue N W
Washington, DC 20037-3202

EXAMINER

WILLIAMS, DEMETRIA A

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 06/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/497,513

Applicant(s)

KAWANABE, YOSHITAKA

Examiner

Demetria A. Williams

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-9 is/are rejected.
- 7) ☒ Claim(s) 5 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sullivan et al ("Sullivan") in view of Nakazawa and Shou et al ("Shou").
3. Regarding claim 1, Sullivan discloses a communications system comprising at least one mobile station and one base station wherein antennas receive the transmitted waves (see generally column 4, lines 9-10), a receiving portion which converts the signals to intermediate frequencies and performs analog-to-digital conversion (see generally column 5, lines 1-10), and a signal processing portion which performs a de-spreading operation for identifying a code of interest and judges the arrival direction of each of the waves (see generally column 4, lines 25-50). Sullivan does not disclose a frequency shift portion prior to combining the signals, nor does he disclose that the signal-processing portion includes fading compensation means.

Nakazawa discloses a communications system comprising a receiver for receiving a plurality of waves wherein the frequency of the received waves is shifted by different degrees for each antenna and then combined in a combiner (see generally column 14, lines 11-50). By shifting the frequencies and then combining the waves, the combined signal that is formed does not have overlapping components. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Sullivan to include a

Art Unit: 2631

frequency shifting portion, as taught by Nakazawa, in order to prevent frequency overlap in the combined signal.

Shou discloses a communications system having a RAKE receiver wherein fading compensation is performed by RAKE processing based on the demodulation signal (see generally column 9, lines 23-56). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Sullivan to include fading compensation, as taught by Shou, in order to compensate for signal interference which occurs when signals are received through a plurality of routes.

4. Regarding claim 2, Sullivan further discloses that the communications systems utilizes code division multiple access (CDMA) (see generally column 4, lines 5-7).

5. Regarding claim 6, Sullivan discloses a communications system comprising at least one mobile station and one base station wherein antennas receive the transmitted waves (see generally column 4, lines 9-10), a receiving portion which converts the signals to intermediate frequencies and performs analog-to-digital conversion (see generally column 5, lines 1-10), and a signal processing portion which performs a de-spreading operation for identifying a code of interest and judges the arrival direction of each of the waves (see generally column 4, lines 25-50). Sullivan does not disclose a frequency shift portion prior to combining the signals, nor does he disclose that the signal-processing portion includes fading compensation means. While Sullivan does specifically disclose an embodiment of the plurality of antennas as an adaptive array antenna, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Sullivan, for use with an adaptive array antenna, as it is well

Art Unit: 2631

know in the art that an adaptive array system is simply a plurality of antennas arranged having separate weighting vectors.

Nakazawa discloses a communications system comprising a receiver for receiving a plurality of waves wherein the frequency of the received waves is shifted by different degrees for each antenna and then combined in a combiner (see generally column 14, lines 11-50). By shifting the frequencies and then combining the waves, the combined signal that is formed does not have overlapping components. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Sullivan to include a frequency shifting portion, as taught by Nakazawa, in order to prevent frequency overlap in the combined signal.

Shou discloses a communications system having a RAKE receiver wherein fading compensation is performed by RAKE processing based on the demodulation signal (see generally column 9, lines 23-56). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Sullivan to include fading compensation, as taught by Shou, in order to compensate for signal interference which occurs when signals are received through a plurality of routes.

6. Regarding claim 7, Sullivan further discloses that the communications systems utilizes code division multiple access (CDMA) (see generally column 4, lines 5-7).

Response to Arguments

7. Applicant's arguments filed April 4, 2003 have been fully considered but they are not persuasive.

Art Unit: 2631

8. First, Applicant argues that Shou does not disclose or suggest a fading compensation means which performs a RAKE combination from the demodulation signal for each of the mobile stations and that the demodulation of the signals received in the Shou patent are performed after RAKE processing. Examiner has relied on the Shou reference only for purposes of showing the RAKE compensation in a communications system similar to that of the Applicant's proposed system. Even if the Shou performs RAKE processing on signals from the base station as opposed to mobile stations, it is an obvious variation to apply the same procedure to those signals received at mobile stations. Also, the Shou patent includes a "RAKE Processing and Demodulator" unit, element 30 in figure 1 which both performs RAKE processing on the received signals and demodulates the data for fading compensation (see generally figure 1; column 9, lines 23-56). Whether the RAKE processing is done before or after the demodulation, the end result is still fading compensation by RAKE combination and demodulation of signals. Which process is performed first is a matter of design choice.

Further, the Komatsu patent, which was cited in the previous office action but not relied upon as a basis for rejection illustrates a RAKE receiver where the combination is performed after demodulation (see generally column 2, lines 1-10). The RAKE receiver in Komatsu is a generic RAKE receiver for use in CDMA communications systems for fading compensation. There is no requirement that it be used in either the base station or the mobile station.

9. Applicant's second argument is that there is not suggestion in any of the applied references that would motivate a combination and that the systems cannot be combined without rendering one or more of them inoperable. However, "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary

Art Unit: 2631

reference.... Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art.” In *re* Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). See also In *re* Sneed, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983) (“[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review.”); and In *re* Nievelt, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973) (“Combining the teachings of references does not involve an ability to combine their specific structures.”).

Further, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for combining the Nakazawa reference with the Sullivan reference is to prevent frequency overlap (see Office Action dated January 10, 2003, page 5 first paragraph). The motivation for combining the Shou reference with Sullivan is to compensate for signal interference (see Office Action dated January 10, 2003, page 5 second paragraph).

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2631

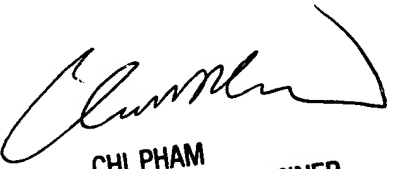
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Demetria A. Williams whose telephone number is (703) 305-4078. The examiner can normally be reached on Monday - Friday, 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (703) 305-4378. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

daw
June 4, 2003


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 6/9/03